

A photograph of water being poured from a chrome faucet into a clear glass. The water is captured in mid-pour, creating a dynamic splash and bubbles at the bottom of the glass. The background is a soft, out-of-focus light blue.

Annual
WATER
QUALITY
REPORT

Reporting Year 2012

Presented By _____
Scituate Water Department

PWS ID#: 4264000

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2012. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Community Participation

The Board of Selectmen, who are also our Water Commissioners, hold open public meetings two times per month at Town Hall. Generally, these meetings are held on Tuesday evenings, and residents are welcome to attend. The meeting dates and agendas are posted on a Town Hall Bulletin board and on the town's Web site (www.town.scituate.ma.us). To receive email notices of meetings, go to the Web site, click on the red banner, and sign up.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Where Does My Water Come From?

The Town of Scituate's drinking water has several sources: six wells, the Old Oaken Bucket pond, the Tack Factory Pond Reservoir system, and the Town of Marshfield (which supplies water to Humarock). The wells are located off Cornet Stetson Road (well numbers 10 and 11), off Tack Factory Pond Road (number 17A), off the Driftway (number 18B), off Chief Justice Cushing Highway (number 19) near the Town Hall, and off Old Forge Road (number 22).

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include: **Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife; **Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and which may also come from gas stations, urban stormwater runoff, and septic systems; **Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system, the fluoride level is adjusted to an optimal level averaging one part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. Our water system has been providing this treatment since 1956. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent, according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Furthermore, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call James DeBarros, Water Department Superintendent, at (781) 545-8737.

Ground Water Rule

On October 2, 2012, we were informed that one of our routine bacteria samples collected on October 1, 2012, was total coliform positive. As required by the Ground Water Rule, we collected a sample from Well numbers 10 and 11 for fecal contamination analysis. The source sample was positive for fecal contamination (E. coli). In response, we sent notices to all of our customers within 24 hrs of learning of this positive sample. (The disinfectant water main was extended to allow for a greater contact time. The project was approved by MADEP and the source went back into service on 12/12/12.)

Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/sero/4264000.pdf>. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of High. If you would like to review the Source Water Assessment Plan, please feel free to visit the Web site listed above.

Treatment Technique Violation

Violation Type: Groundwater positive for E. coli

Date and Length of Violation: 10/1/12

Steps Taken to Correct Violation: MADEP approval of newly constructed looped water main, adds longer disinfection time, resulting in higher kill ratio.

Health Effects: Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.

Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and in the air, soil, and water. Some are harmful to us and some are not. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease.

Federal regulations require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliform are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliform to be present in water at any concentration.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2012	15	0	0.25	0–0.5	No	Erosion of natural deposits
Barium (ppm)	2012	2	2	0.007	0.002–0.009	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2012	[4]	[4]	1.18	0.60–1.18	No	Water additive used to control microbes
Chlorite (ppm)	2012	1	0.8	0.53	0.44–0.57	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2012	5	0	0.05	0–0.1	No	Erosion of natural deposits
<i>Cryptosporidium</i> (# positive samples)	2009	TT	0	1	0–1	No	Discharged especially where water is contaminated with sewage or animal wastes
Di(2-ethylhexyl) Adipate (ppb)	2012	400	400	2.4	2.4–2.4	No	Discharge from chemical factories
Fluoride (ppm)	2012	4	4	1.0	0.81–1.2	No	Water additive that promotes strong teeth
<i>Giardia lamblia</i> (# positive samples)	2009	TT	0	1	0–4	No	Discharged especially where water is contaminated with sewage or animal wastes
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2012	60	NA	6.36	0–29.6	No	By-product of drinking water disinfection
Nitrate (ppm)	2012	10	10	1.3	0.31–1.8	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2012	2	NA	0.083	0–0.117	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2012	80	NA	36.1	18.7–88.5	No	By-product of drinking water disinfection
Tetrachloroethylene (ppb)	2012	5	0	0.07	0–0.63	No	Discharge from factories and dry cleaners

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.000314	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	6	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	EXCEEDANCE	TYPICAL SOURCE
Aluminum (ppm)	2012	0.2	NA	0.3	0–1.1	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2012	250	NA	62	31–100	No	Runoff/leaching from natural deposits
Color (Units)	2012	15	NA	25	19–27	No	Naturally occurring organic materials
Manganese' (ppm)	2012	0.05	NA	0.08	0–0.19	Yes	Leaching from natural deposits
pH (Units)	2012	6.5–8.5	NA	7.5	7.1–7.8	No	Naturally occurring
Sulfate (ppm)	2012	250	NA	23	11–49	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2012	500	NA	220	160–260	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES ²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2012	1.48	0–5.81	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2012	1.03	0–2.79	By-product of drinking water disinfection
Chloroform (ppb)	2012	1.46	0–7.29	By-product of drinking water disinfection
Nickel (ppm)	2012	0.1	0–0.001	NA
Sodium (ppm)	2012	34	19–54	Natural sources; Runoff from salt used on roadways; By-product of treatment process

INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE) ³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAAs]–IDSE Results (ppb)	2010	3.2	0–6.7	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2010	20.4	9–29	By-product of drinking water disinfection

¹ Manganese is a naturally occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. MADEP has set a health advisory limit for manganese at 0.3 ppm.

² Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminant is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

³ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.